



# Mountain Biking at Tsali: An Assessment of Users, Preferences, Conflicts, and Management Alternatives



**PRELIMINARY DRAFT**

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## **INTRODUCTION**

Mountain biking is one of the newest and most rapidly growing outdoor recreation activities in the United States. Preliminary estimates from the 2000 National Survey on Recreation and the Environment indicate that approximately 20 percent of Americans 16 years and older participate at least once a year in mountain or off-road biking. It is an activity of particular interest to many forest managers because it occurs on the trails and forest roads which are also used by hikers, horseback riders, hunters and other recreationists. However, the rise of mountain biking as a significant forest recreation activity has been so rapid that very little information exists about its participants. Mountain biking is an especially important activity to Forest Service managers in western North Carolina. This region has become nationally famous for the quality of the mountain biking experience provided on trails and forest roads. Tourism for mountain biking has risen dramatically in recent years. Consequently, nearby areas have begun to implement plans to expand their mountain biking facilities, which could lead to further increases in visitation. Managers need information about the use patterns, preferences, and needs of this growing market, in order to properly plan facility developments which meet the needs of these customers without sacrificing quality of the natural resource base.

This influx of visitors from around the country holds the potential to serve as an important economic force in the small communities that dot the valleys of western North Carolina. However, in order to take advantage of this potential, more information about mountain bikers is needed, specifically about their spending patterns on recreation trips, and the kinds of development that could entice greater levels of recreational spending through increases in visitor numbers and duration of stay.

### **Study Objectives**

This study was undertaken to gather information about mountain bike users of the Tsali Recreation Area, in the Nantahala National Forest. Tsali is considered one of the premier mountain biking venues in the eastern U.S. Balancing the ever-growing demand for mountain biking with traditional activities including horseback riding, hiking, and hunting is a challenge for

managers of the area. Several major objectives were intended for this study. Among these objectives are:

- (1) describing mountain biking participants, and identifying market segments;
- (2) giving managers at Tsali feedback about their customers' perceptions of the area's current attributes, facilities, and management policies;
- (3) giving managers at Tsali feedback about customers' preferences for future management policies and facility development;
- (4) assisting local communities' efforts in rural economic development through tourism, by providing information about the spending patterns, use patterns, and sources of information pertaining to mountain biking tourists; and
- (5) developing estimates of the economic benefits and regional economic impacts generated by mountain bike recreation at Tsali.

This is the first in a series of reports addressing the above objectives. Here we focus primarily on the first three objectives by statistically summarizing user characteristics, current trip profiles, visitor ratings of site attributes, facilities, management policies, visitor ratings of off-site attractions and services, and visitor preferences for site facility development and management in the future. The remainder of this report includes a discussion of research methods and procedures followed by sections on household demographics, mountain biking behavior in general, a profile of the current trip, perceptions of current on-site attributes and facilities, perceptions of local area services and places of interest, perceptions of current management policies, and preferences for future facility development and management alternatives.

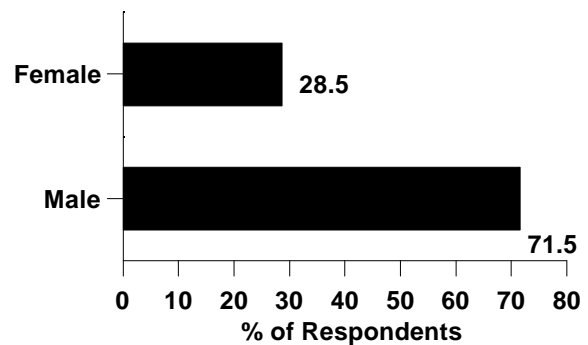
## **Research Design**

Surveying at Tsali occurred on 129 days from the beginning of August 1998 to the end of August 1999. Sampling days were randomly allocated within each of four seasons. The number of days sampled within each season was based on the estimated season's share of annual use. On each of these days, trained volunteer interviewers randomly surveyed selected visitors over age 12 as they completed their day's ride at Tsali. Less than one percent of those approached refused to be interviewed. In all, 1359 contacts were made.

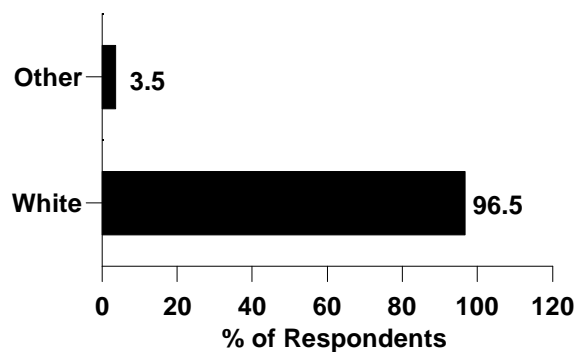
On-site survey questions included information about the individual's number of annual mountain biking trips in general and to Tsali, household demographics, preferences and satisfactions with facilities at Tsali, and selected information about their current recreation trip to Tsali. In addition, questions about user fees, management policies, and future management alternatives were included. Due to the large number of questions, two different surveys were ultimately used. These surveys, versions A and B, are included in Appendix A.

## VISITOR DEMOGRAPHICS

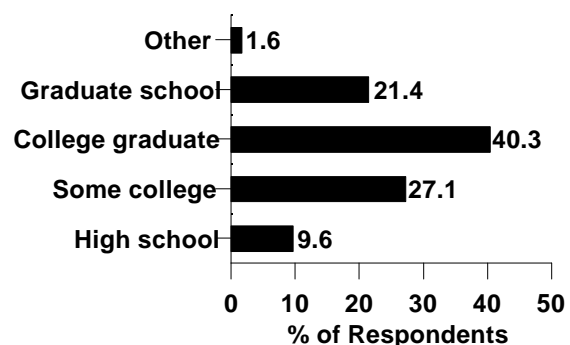
The great majority of Tsali users interviewed were white males. Overall, 71.5 percent of those surveyed were male (figure 1) while 96.5 percent of visitors identified themselves as white (figure 2). The education level reported by Tsali users is quite high. More than 20 percent have attended graduate school with an additional 40.3 percent possessing undergraduate degrees and another 27.1 percent, including current students, reporting some college (figure 3). Only 10 percent reported having a high school education or less. However, it should be noted that the later group included all of the people interviewed who were less than 18 years old.



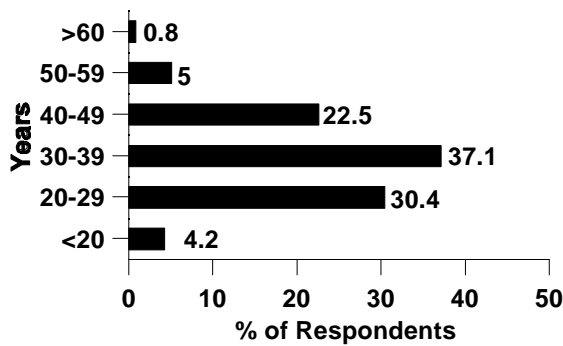
**Figure 1.** Percent of respondents by gender.



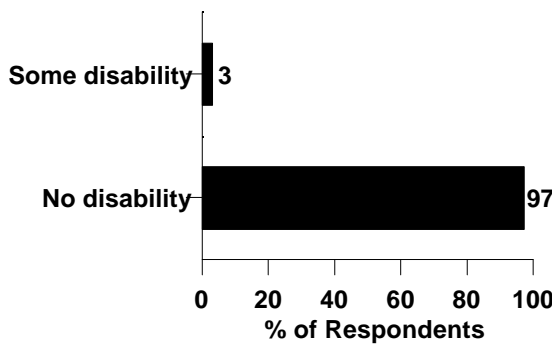
**Figure 2.** Percent of respondents by race.



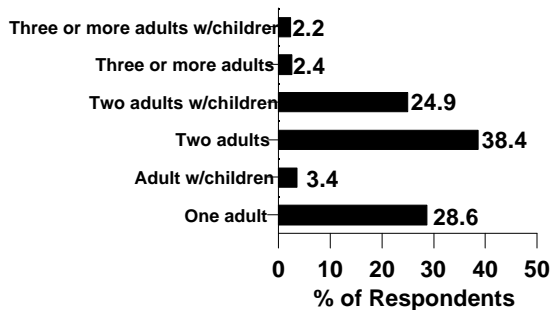
**Figure 3.** Percent of respondents by education.



**Figure 4.** Percent of respondents by age.



**Figure 5.** Percent of respondents by disability.



**Figure 6.** Percent of households by composition.

households earning between \$30,000 and \$50,000 per year. Just under one-fourth (24.4 percent)

The average age for the visitors surveyed at Tsali was 34.1 years. Eighty percent of the visitors ranged from 20 and 49 years old (figure 4). Those in the 30 to 39 year old age group comprised the largest age cohort at 37.1 percent. Approximately 6 percent of the visitors were over 50, while less than 5 percent were under the age of 20. Mountain biking at Tsali does not seem to be the exclusive domain of the young as nearly 30 percent of all visitors were over the age of 40. About 3 percent of those interviewed reported some disability (figure 5).

Almost 70 percent of the visitors surveyed came from households with no children (figure 6). Households comprised of just two adults accounted for 38.4 percent of the visitors, and single person households made up 28.6 percent more. Households of more than two adults, but no children comprised 2.4 percent of visitors. Most of the households with children also had two adults. This type of household accounted for 24.9 percent of all visitors. Only 3.4 percent of visitors reported living in single-parent households, and only two percent reported living in households with children and more than three adults.

Income levels for these visitors were also above average. Only 14.5 percent of visitors reported household incomes below \$30,000 per year (figure7). Not quite 20 percent came from

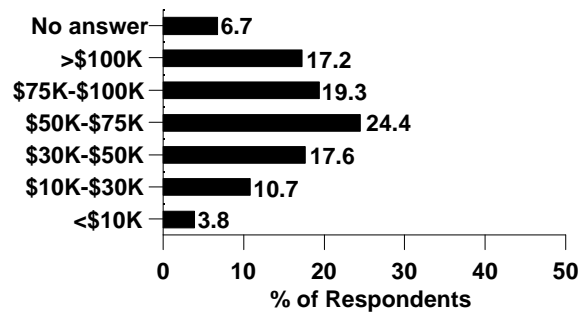
lived in households where income was between \$50,000 and \$75,000 per year. Another one-fifth of the visitors (19.3 percent) had household incomes between \$75,000 and \$100,000. Almost one fifth more (17.2 percent) reported having household incomes over one hundred thousand dollars.

Just over 6 percent of those interviewed chose not to report their household incomes.

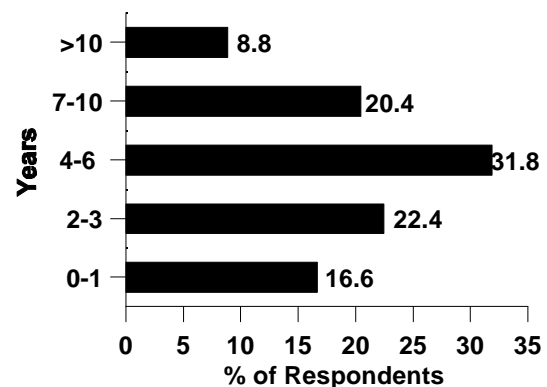
The distribution of reported household incomes ranges broadly with sizable proportions of visitors falling into the under \$30,000 and over \$100,000 categories. However, it should be noted that nearly 40 percent of those surveyed report household incomes in excess of \$75,000 per year. An estimate of annual income can be obtained by multiplying the midpoints of each income category by the percentages adjusted for those choosing not to report income. This yields an average household income for Tsali visitors of approximately \$70,000 per year.

## MOUNTAIN BIKING PROFILE

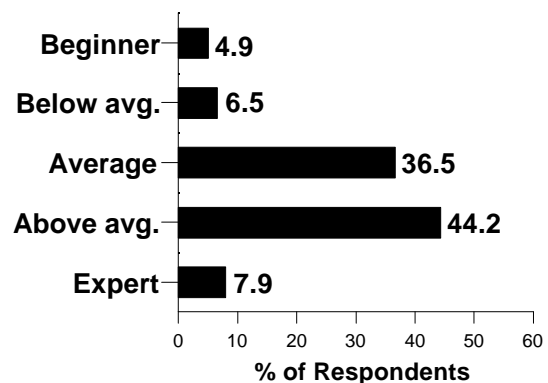
Tsali visitors comprise a wide range of mountain biking experience and skill levels. On average, visitors claimed to have 5.4 years of mountain biking experience. A relatively large percentage of the visitors were newcomers to mountain biking. Thirty-nine percent of those surveyed indicated that they had been mountain biking for 3 years or less (figure 8).



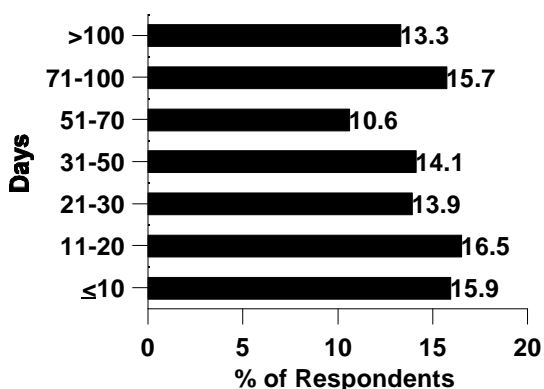
**Figure 7.** Percent of respondents by income.



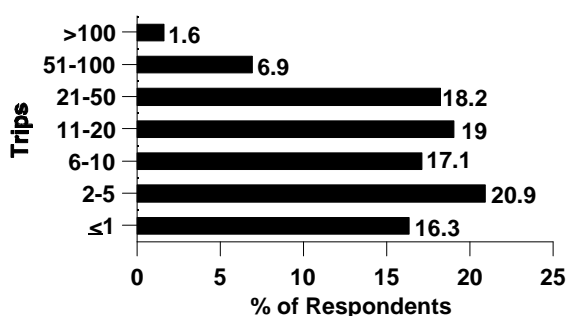
**Figure 8.** Percent of respondents by year(s) of mountain biking experience.



**Figure 9.** Percent of respondent by skill level.



**Figure 10.** Percent of respondents by mountain biking days anywhere in last 12 months.



**Figure 11.** Percentage of respondents by trips mountain biking anywhere in last 12 months.

for participation intensity in an outdoor recreation activity are days and trips. The average number of days per year over all visitors was 59.2. Five percent of visitors said they did not mountain bike a single day in the past 12 months, while 15.9 percent spent 10 or fewer days participating (figure 10). At the other extreme, 39.6 percent of visitors claimed to have participated in mountain biking on at least 50 days in the previous year. Indeed, 13.3 percent of respondents indicated that they participated in the sport on at least 100 different days.

On average, visitors to Tsali reported taking about 21 trips (traveling more than 20 minutes from home to any location) during the last year to go mountain biking. About 16 percent indicated that they took one or fewer trips in the past 12 months with more than half of those having taken no trips (figure 11). Just under 9 percent of the visitors reported taking more than

In fact, up to 16.6 percent of the visitors had been participating in the sport for less than 1 year. Not quite one-third (31.8 percent) had been participants in the sport for 4 to 6 years. Approximately 29.2 percent of respondents had been mountain biking for more than 7 years; a third of whom had been participating for more than 10 years.

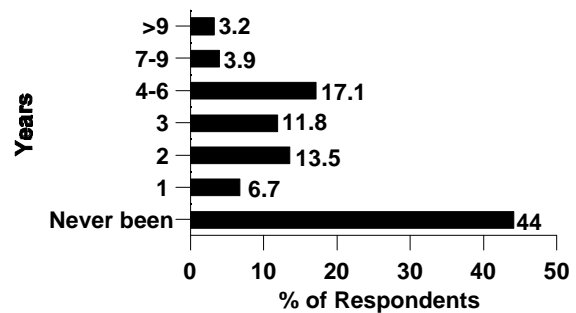
Self-assessed mountain biking skill levels indicated that the great majority of Tsali users have 'average' or 'above average' ability (figure 9). Less than 12 percent considered themselves 'below average' or 'beginners'. Slightly more than one-third (36.5 percent) felt they had 'average' skills. 'Above average' skill was reported by 44.2 percent of the visitors, while 7.9 percent claimed to be 'experts' at mountain biking.

There was wide variety in the frequency that visitors reported participating in mountain biking over the last 12 months. Two common measures

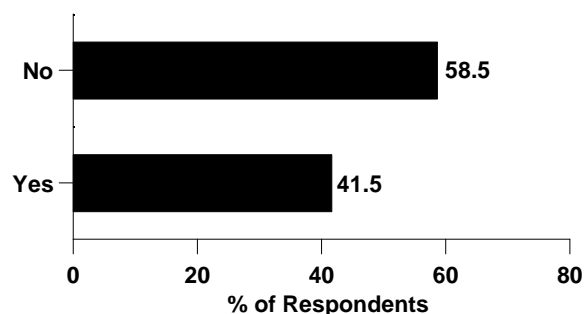
50 trips per year while another 18.2 percent said they took between 21 and 50 trips in the last year. The largest percentage for any single category, 20.9 percent, applied to those taking 2 to 5 trips per year. Nineteen percent took 11 to 20 trips, while 17.1 percent took 6 to 10 trips last year.

Respondents to the survey indicated that, on average, they have been coming to Tsali for just over 2 years. About 50 percent said that they had been visiting Tsali for 1 or fewer years (figure 12). Most of those, over 40 percent of all sampled, said that this was their first visit (figure 13). Just over 25 percent indicated that they had been coming to Tsali for either 2 or 3 years while 17.1 percent claimed to have visited for between 4 and 6 years. About 7.1 percent reported that they had been riding at Tsali for 7 or more years.

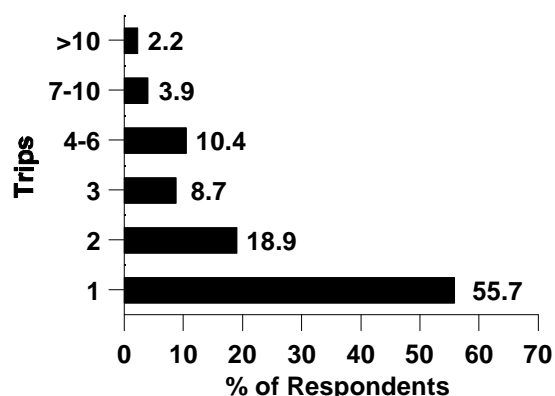
Including the current trip, 55.7 percent of respondents indicated taking one trip to Tsali in the last 12 months (figure 14). Again, most of these were first-time visitors. About 27.6 percent reported taking either 2 or 3 trips in the past year, while 10.4 percent took 4 to 6 trips. Visitors who took more than 7 trips to Tsali last year comprised 6.1 percent of all respondents. The average number of trips to Tsali in the past 12 months across all respondents was just under three (2.86). For those who had visited Tsali previously, the average number of trips to Tsali in



**Figure 12.** Percent of respondents by years visiting Tsali.

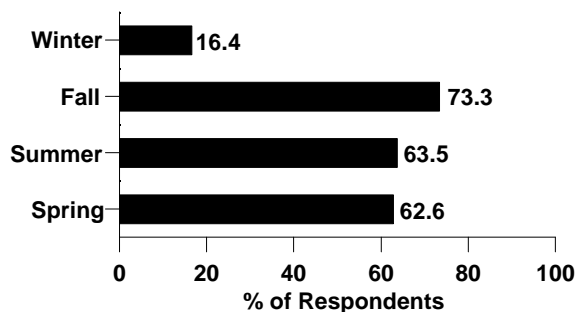


**Figure 13.** Percent of respondents by first visit to Tsali.

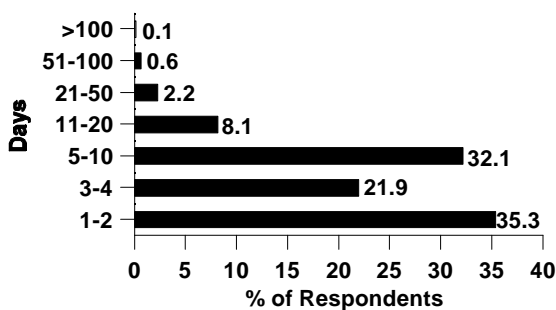


**Figure 14.** Percent of respondents by trips to Tsali last 12 months.

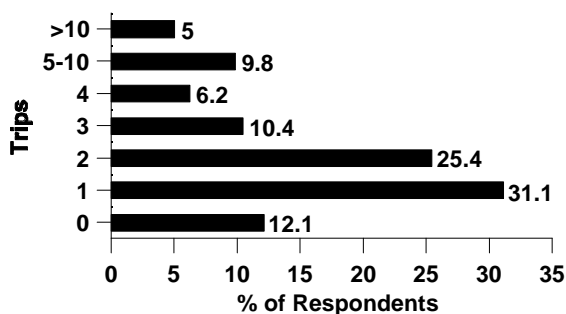




**Figure 15.** Percent of respondents by seasons likely to visit Tsali.



**Figure 16.** Percent of respondents by days at Tsali last 12 months.



**Figure 17.** Percentage of respondents by planned trips to Tsali next 12 months.

the last 12 months was 4.13 for any reason, and 3.88 specifically to mountain bike.

Visitors were asked what season(s) of the year they typically mountain biked at Tsali. The distribution of trips appears to be spread evenly over spring, summer, and fall with a large drop off in the winter months (figure 15). With respect to specific patterns, the most common response was spring, summer and fall (23.6 percent). The next most common pattern was both spring and fall (16.5 percent). Two other patterns, summer only and all four seasons, each were reported by about 13.9 percent of visitors. About ten percent said they typically came just in the fall, and about 9.6 percent came in both summer and fall. Various other combinations of seasonal patterns made up the remaining percentage.

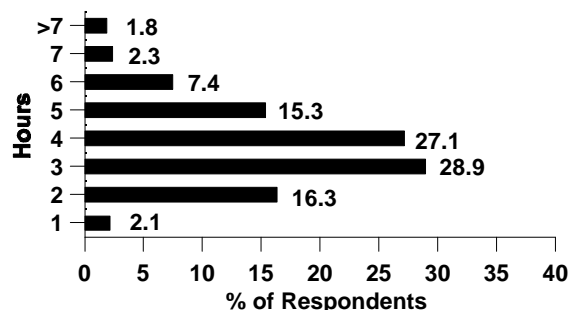
Including time on the current trip, respondents spent an average of 5.82 days at Tsali during the previous 12 months. The largest single category, 1 to 2 days, accounted for 35.3 percent of respondents (figure 16). Three or four days were claimed by 21.9 percent of respondents, while another 32.1 percent spent 5 to 10 days at Tsali over the past year. Only 8.1 percent of respondents spent between 11 and 20 days on site last year, with fewer than 3 percent spending more than 21 days. Those who were return visitors to Tsali indicated that they had spent an average of 7.88 days recreating at Tsali in the last 12 months.

Dividing the average days per person by the average number of trips per person (4.13) yields an average ratio of about 1.9 days per trip for those who are return visitors. For those who are first-time visitors, the ratio is about 2 days per trip. Thus, it would appear that many people who visit Tsali do so as part of a multi-day recreation trip to the area.

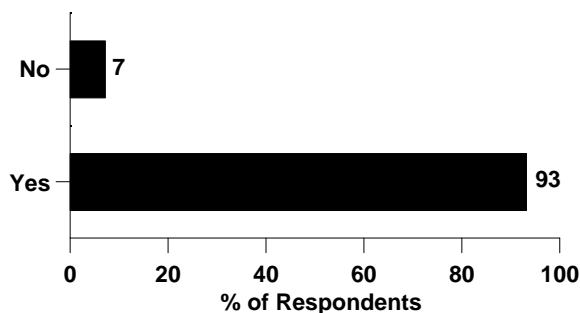
On average, respondents indicated that they planned to take 3.34 trips to Tsali over the next 12 months. Only 12.1 percent said they did not plan to revisit the area next year (figure 17). The two largest categories, 31.1 and 25.4 percent respectively, maintained that they intend to visit Tsali either once or twice next year. About 16.6 percent of visitors intend to return 3 or 4 times in the next year with another 9.8 percent planning to come back 5 to 10 times and 5 percent expecting to make more than 10 trips to Tsali next year.

Visitors spent, on average, 3.67 hours riding on a typical day at Tsali. Only 2.1 percent of riders spent an hour or less on trails (figure 18). Slightly more, 3.1 percent, spent more than 6 hours riding on a typical day. Over 90 percent spent from 2 to 6 hours riding with 3 hours at 28.9 percent, and 4 hours at 27.1 percent, as the most popular ride durations.

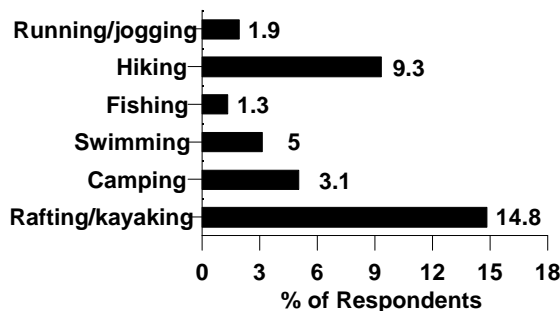
Ninety-three percent of those surveyed listed mountain biking as their main activity (figure 19).



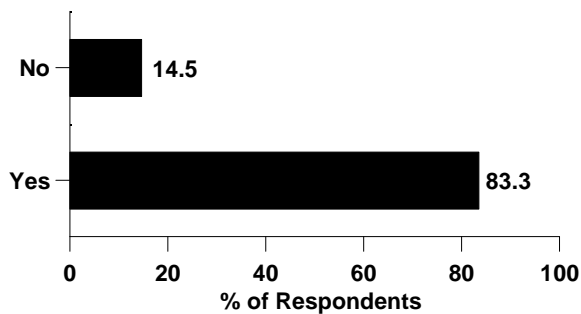
**Figure 18.** Percentage of respondents by hours ridden per day at Tsali.



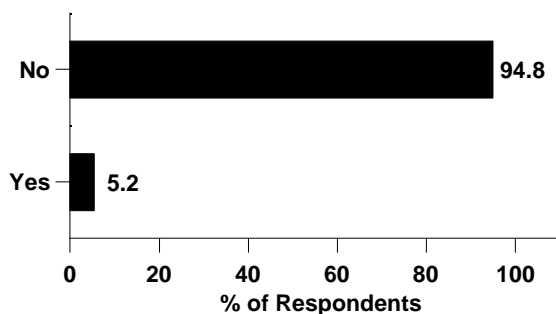
**Figure 19.** Percent of respondents listing mountain biking as favorite Tsali activity.



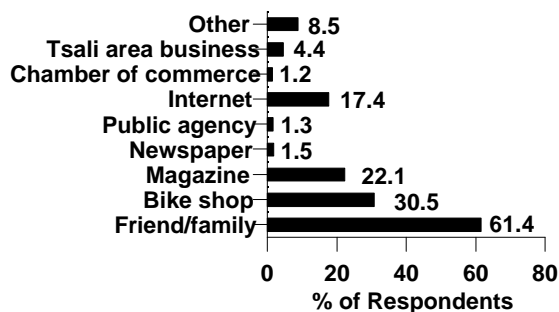
**Figure 20.** Types of activities other than biking.



**Figure 21.** Percent of respondents listing Tsali as favorite place to mountain bike.



**Figure 22.** Percent of respondents possessing an annual pass.



**Figure 23.** Percent of respondents by information source.

Among those people visiting Tsali for the first time, over 99 percent stated that mountain biking was the primary reason for their trip.

Nevertheless, 27.3 percent of all respondents reported actively engaging in other recreation activities during a typical Tsali visit. Rafting and floating sports comprised the most popular alternative to biking and were enjoyed by about 15 percent of all Tsali visitors (figure 20). Hiking and camping, at 9.3 and 5 percent respectively, were the next most popular alternatives. Swimming, running/jogging, and fishing were next at a combined 6.3 percent.

Tsali was listed as the 'favorite place' to mountain bike by 83.3 percent of respondents (figure 21). However, only 5.2 percent of the respondents obtained annual passes (figure 22). Nevertheless, these people took an average of 11.7 trips per year to Tsali for all recreation activity, including 10.7 trips per year for mountain biking. Most of these trips were single-day trips, since the reported average number of days spent recreating at Tsali for this group was 13.8 per person per year.

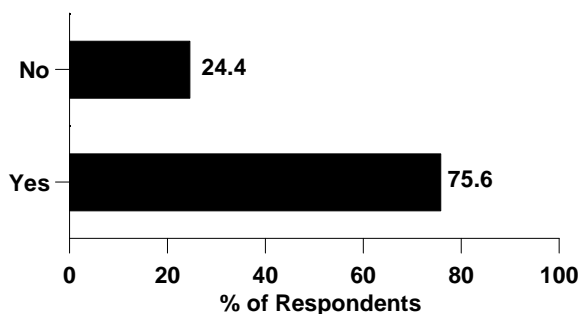
Visitors were also queried as to where they obtained information pertaining to Tsali. Individuals were asked to list all such sources. The most popular single source of information, listed by 61.4 percent of respondents, was talking with friends or family (figure 23). This was

followed by bike shop at 30.5 percent. Mass media sources such as magazines and the internet comprised 22.1 and 17.4 percent of information sources respectively. However, newspapers were listed by only 1.5 percent of respondents. Area businesses and chambers of commerce together were noted on about 5 percent of responses, while a general category of 'other' was claimed by 8.5 percent of respondents. The 'public agency' category was checked by only 1.3 percent of all visitors.

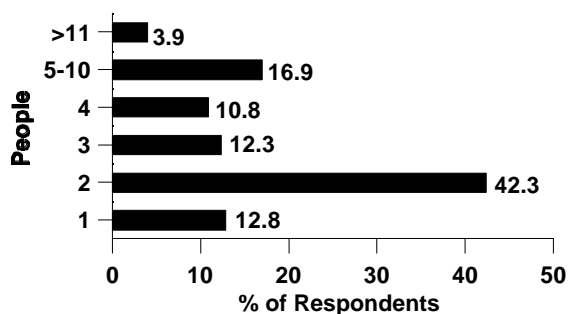
## CURRENT TRIP PROFILE

The current trip profile deals with information pertaining only to the current trip. For three-fourths (75.6 percent) of those visitors surveyed, the Tsali Recreation Area was the primary destination for their current trip (figure 24). For 41.5 percent of the visitors it was their first trip. Ninety-three percent of the visitors indicated that mountain biking was their primary recreation activity while at Tsali and over 80 percent said that Tsali was their favorite place to go mountain biking. Only 2.8 percent of those visitors who were contacted said they used the services of a professional guide during their ride.

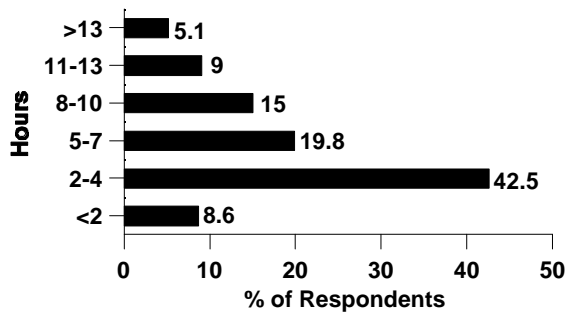
Most visitors came in relatively small groups. The largest number of respondents, 42.3 percent, came with one other person (figure 25). About 12.8 percent of respondents came alone while another 12.3 percent reported coming in a group of three. Groups of between 4 to 10 people made up 27.7 percent of the sample. Only 4.3 percent said they were in a group of more than 10 people. Not surprising, the vast majority of



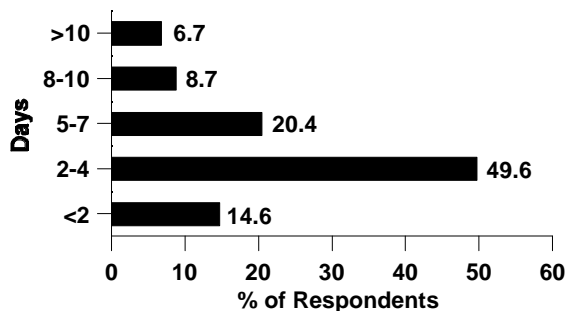
**Figure 24.** Percent of respondents by Tsali as primary destination on current trip.



**Figure 25.** Percent of respondents by group size.



**Figure 26.** Percent of respondents by one-way transit time.



**Figure 27.** Percent of respondents by length of current trip.

involved an overnight away from home. Only 14.6 percent indicated that they were away from home for a day or less on this recreation trip (figure 27). The majority of visitors (49.6 percent) said that for this trip, their time away from home was from 2 to 4 days. Trips lasting 5 to 7 days were reported by 20.4 percent of visitors while trips lasting longer than a week were reported by 15.4 percent of visitors.

Among visitors surveyed, the Right Loop received the most use. This loop is 11 miles long and primarily single track with lake views and creek crossings. Sixty percent of respondents reported riding the Right Loop on the day of their interview (figure 28). Part of the attraction of this loop is that trails are available to shorten the ride to either 4 or 8 miles. Usage of the remaining trails was about equal. The Thompson Loop consisting of 7.7 miles of mixed single track and old logging roads with stream crossings and old-homesite views was ridden by 31.9

visitors came with a group of friends or family. However, 3.9 percent of visitors reported coming with an organization or club.

The wide geographic appeal of Tsali is evident in the distribution of reported travel times of visitors (figure 26). Only 8.6 percent of those surveyed said they lived within 2 hour's travel time. The greatest number of people, 42.5 percent, reported being within a 2 to 4 drive of Tsali. This distance would include such metropolitan centers as Atlanta, Knoxville, Charlotte, Asheville, Chatanooga, Athens, and Johnson City. Another 19.8 percent of respondents lived between a 5 and 7 hour drive, while just over 19 percent traveled from 7 to 10 hours one way to get to Tsali. More than 10 hours of one-way travel was reported by 14.1 percent of the surveyed visitors.

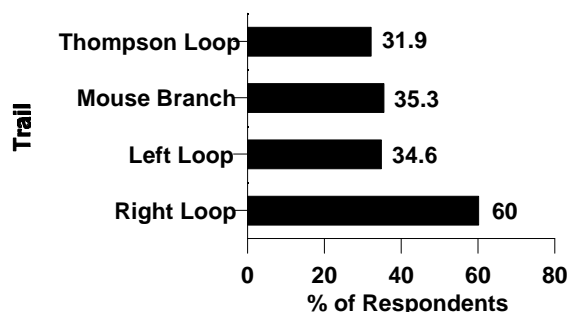
Most visitors indicated that their trip

percent of respondents. Mouse Branch, which is 6.5 miles of single track and old logging roads with wildlife openings was ridden by 35.3 percent of respondents. Finally, the Left Loop, which is single track, 11.9 miles long, and features views of the Smoky Mountains and Lake Fontana was ridden by 34.6 percent of respondents.

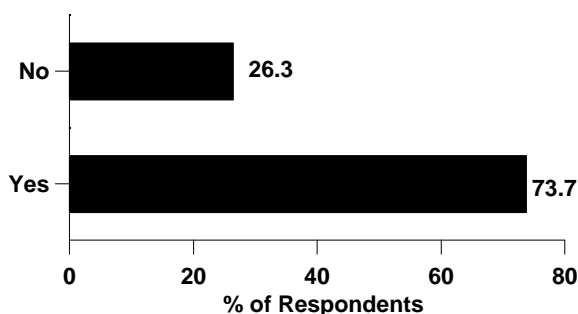
The trail question was worded to allow reporting of various combinations of trails. Nearly one quarter (24.7 percent) of those interviewed reported riding just the Right Loop. Another 21.5 percent reported riding both the Right Loop and Left Loop. Only 8.8 percent said they rode just the Left Loop trail. Combining the Mouse Branch and Thompson Loops was more common than riding either alone. Just over 16 percent of visitors said they rode both Mouse Branch and Thompson on the day they were interviewed. By comparison, only 7.4 percent said they rode just Mouse Branch, and 4.7 percent said they rode just the

Thompson Loop trail. The rest of the visitors reported various other combinations of trails ridden, as well as about 3 percent who indicated they did not know which trails they rode. Hence, about 15 percent reported riding combinations of trails that are not allowed under the current horse/bike rotation system. This could indicate that visitors are violating existing policy, however it could also mean that some people could have reported trails ridden throughout a multi-day visit rather than just on the day surveyed.

If Tsali were unavailable for their current trip 73.7 percent of visitors said they would have recreated elsewhere (figure 29). Of those, the vast majority, 75.8 percent, said they would seek an



**Figure 28.** Percent of respondents by trails ridden today.



**Figure 29.** Percent of respondents by recreate elsewhere if Tsali were unavailable.

alternative location for biking. A smaller number said they would go elsewhere and participate in a different activity such as paddle sports at 7.2 percent or hiking at 6.7 percent.

## **PREFERENCES AND SATISFACTION**

In this section visitor responses pertaining to three important aspects of the Tsali recreation experience are summarized. These include trail attributes, site facilities, and local area amenities. Each of the aspects contains a number of dimensions. Trail attributes include trail surfaces, congestion, scenery, vegetation, signage, and the amounts of various types of trails. In addition, the horse/bike rotation system is included among trail attributes. Site facilities include toilets, parking, campsites, security, bike washing area, and the information board. Local area amenities include lodging, off-site public and private campgrounds, restaurants, shopping, guide and outfitter services, and other places of interest.

For each dimension, respondents were asked to assess current their satisfaction with performance and then to rate relative importance. Combining the performance and importance rating information helps managers determine areas where they have met customer needs, and highlight areas for improvement. Items that have high scores on both satisfaction and importance show where managers have earned a ‘gold star’, in that they have performed well for items that customers find important. Items that need increased attention would be any that had high importance scores and low performance ratings. Reduced emphasis could occur for items with low importance scores, and very high satisfaction ratings. For example, while parking and the bike washing area could receive similar performance or satisfaction ratings of ‘fair’, parking could receive a higher importance rating. This information would assist managers in directing limited resources toward parking because of its relative importance.

### **Trail Attributes and Types**

Trail attribute performance and importance ratings are listed in table 1. Columns 2 through 5 of the performance portion contain percentages of respondents ratings across four levels, ‘very good,’ ‘good,’ ‘fair,’ and ‘poor.’ For the congestion attribute, the levels from best to worst are, ‘very low,’ ‘low,’ ‘fair,’ and ‘high.’ Each of the performance levels was assigned a quantitative

value evenly divided on a scale of 5 to 1. Column 6 contains performance means across trail attributes while column 7 ranks the performance means.

Trail scenery rated the top performance mean of 4.55 with 98 percent of respondents rating scenery as ‘good’ or ‘very good.’ Trail surfaces and the horse/bike rotation system ranked second and third in terms of performance with means of 4.11 and 4.06 respectively. The percent of respondents rating trail surfaces as ‘very good’ or ‘good’ was 91.9, while those rating the horse/bike rotation system as ‘very good’ or ‘good’ was 87.1 percent. For each of these attributes, it would appear that users are highly satisfied with current conditions on site.

Three of the 6 trail attributes earned performance mean ratings less than 4. These included trail-side vegetation management (3.75), congestion (3.64), and trail signage (3.62). For each of these attributes, at least 70 percent of respondents rated conditions at Tsali as either ‘very good’ or ‘good’ (‘low’ or ‘very low’ for congestion). However, there was a noticeable increase the percentage of respondents rating conditions as ‘fair’ or ‘poor.’ Hence it would appear that based solely on current performance, these latter 3 attributes are the most likely to require attention from management.

The bottom portion of Table 1 contains information from respondents pertaining to the relative importance of each trail attribute. Columns 2 through 6 contain importance ratings percentages by attribute across 5 levels, ranging from ‘very important’ to ‘moderately important’ to ‘not important.’ Quantitative values for each level were evenly divided from 1 to 5 allowing the calculation of an importance rating mean for each attribute (column 7) and an overall importance rank (column 8). Trail surfaces and trail congestion were rated as the two most important attributes by survey respondents, with mean importance ratings of 4.18 and 4.05 respectively. These were the only two attributes for which more than 40 percent of users gave ‘very important’ ratings. Moreover, in both cases, close to 95 percent of respondents rated these two attributes as at least ‘moderately important.’ Signage, horse/bike rotation, and trail-side vegetation management were ranked as the least important trail attributes with importance means of 3.81, 3.72, and 3.50 respectively. Over 15 percent of respondents rated both the horse/bike rotation system and trail-side vegetation management as less than ‘moderately important.’



Table 1. Trail attribute performance and importance

Attribute		[Performance]					
		Percent of Respondents					
		(5)	(3.67)	(2.33)	(1)	Performance	Rank
		Very good	Good	Fair	Poor	Mean	
Scenery		68.4	29.6	1.9	0.1	4.55	1
Signage		30.7	39.8	24.7	4.8	3.62	6
Surface		42.3	49.6	7.3	0.7	4.11	2
Vegetation		32.5	44.6	19.2	3.7	3.75	4
Rotation		46.3	40.8	8.9	4.0	4.06	3
		Very low	Low	Fair	High		
Congestion		34.4	36.0	23.0	6.5	3.64	5
Attribute	[Importance]						
	Percent of Respondents						
	(5) Very important	(4)	(3) Moderately Important	(2)	(1) Not Important	Importance Mean	Rank
Scenery	35.4	33.1	25.3	3.7	2.5	3.95	3
Signage	33.5	29.9	24.7	8.0	3.9	3.81	4
Surface	43.9	36.1	16.0	2.3	1.8	4.18	1
Vegetation	21.1	31.1	31.8	8.7	7.1	3.50	6
Rotation	37.8	22.9	21.7	7.9	9.7	3.72	5
Congestion	40.0	32.9	21.2	4.0	1.9	4.05	2

Combining the performance and importance ratings leads to some fairly clear management implications regarding trail attributes. First, riders find trail surfaces and trail congestion very important to their experience at Tsali. The trail surface attribute is among the highest in terms of performance, suggesting that current management practices are highly successful in this regard.

On the other hand, congestion is the second lowest ranked performance attribute. Coupled with its relatively high importance, this suggests that trail congestion is an issue that management will need to address. This issue could be further compounded by the growing popularity of mountain biking in general and at Tsali in particular.

Related to congestion, is the horse/bike rotation system which is ranked relatively high for performance but low for importance. Overall, only 12.3 percent of respondents claimed to have any conflicts on trails at Tsali. Less than 3 percent reported conflicts with either horse riders or hunters. The most conflicts, 7.5 percent, were reported to have occurred with other mountain bikers. Bikers are likely considering the lack of conflicts with horse riders when rating the performance of this item as high and also the relatively light horse traffic in general as rating the rotation system as relatively unimportant. They may not be considering the potential to lessen congestion by substituting additional biking days for horse days. As biking demand grows this may be an avenue for management consideration.

Signage is ranked lowest in terms of performance, but it is also near the bottom in importance. This suggests that, in spite of the relatively poor performance, riders on average generally do not consider signage a big issue. However, this result could be misleading. For example, return riders are likely to know the various trails fairly well after. First-time visitors on the other hand, are likely to have less knowledge about the trails and consider signage more important. Given that over 40 percent of those surveyed were first-time visitors and that 63.4 percent of respondents rated signage as more than moderately important, management may find it beneficial to improve signage at the site.

In addition to the quality attributes of trails, visitors were asked to evaluate the amounts of various types of trails including easy trails, difficult trails, and single-track trails. Importance and performance ratings for the various types of trail gives management information which can be useful in the redesign of existing trails as well as the construction of new trails.

Trail type performance ratings are reported in Table 2. Columns 2 through 4 represent rider percentages rating the current amounts of a given trail type as 'too much', 'about right', or 'too little'. Overall, it would appear that the mix of trail types at Tsali is quite good with nearly 90 percent rating the amount of single track trails as 'about right' and 88 percent rating the amount of easy trails similarly. The only performance issue appears to be that a segment of riders (15.9

percent) would like to see an increase in difficult or highly technical trail mileage. The importance ratings in the lower part of Table 2 suggest that single track trails are most important on average to current users (3.96) while easy trails are least important (3.20).

Table 2. Trail type performance and importance.

Trail Type		[Performance]					
		Percent of Respondents					
		Too much	About right	Too little			
Single track		3.0	89.6	7.3			
Easy trails		4.3	87.9	7.8			
Difficult trails		2.5	81.6	15.9			
Trail Type	[Importance]						
	Percent of Respondents						
	(5) Very Important	(4)	(3) Moderately Important	(2)	(1) Not Important	Importance Mean	
Single track		41.6	23.5	26.4	6.7	1.8	3.96
Easy trails		16.8	21.4	37.1	14.7	9.9	3.20
Difficult trails		23.4	29.1	34.9	9.0	3.5	3.60

Combining the performance and importance information, it is interesting to note that the percentage of riders rating the amount of difficult trails as ‘too little’ is about the same as the percentage rating easy trails as ‘very important’. The results say, for the most part, that the current mix of trail types at Tsali is close to optimal for the current population of users. If changes are to be considered or new trail segments added, increasing the number of difficult, single track trail sections should be a priority.

Comparing importance means of trail types (Table 2) to importance means of trail attributes (Table 1) , one sees that the importance of amount of single track trails (3.96) is on par with trail

scenery (3.95) but less than trail surfaces (4.18) and trail congestion (4.05). By far the least important trail related item is the amount of easy trails, with a mean importance of 3.20.

### **Site Facilities and Services**

Site facilities and services include toilets, parking, campsites, bike washing area, visitor information board, and security/safety. These items mainly involve man-made features designed to facilitate the natural resource-based experience desired by Tsali visitors. As with trail attributes and types, visitors were queried regarding the quality and importance of the facilities listed above.

Toilet facilities at Tsali include a permanent structure adjacent to the parking area containing modern male and female pit toilets. In addition, there are four flush toilets in the campground area along with male and female showers. Parking at Tsali consists of a main lot at the trailhead with approximately 60 spaces. Additional parking can be found in the campground and adjacent to the access roads. Overnight facilities at Tsali include a campground with a capacity of approximately 42 separate sites. Additional constructed facilities at Tsali include an information board and a bike washing station, both at the trailhead. The bike washing station at Tsali consists of hoses attached to running water with good pressure and a hanging stand.

Performance and importance ratings for site facilities are reported in Table 3. The format of Table 3 is similar to Table 1 with the exception of a column added to the performance section to allow for ‘don’t know/don’t care’ responses. These responses were not used in calculating performance means.

Parking ranks first among site facilities in terms of current performance with a mean of 4.10. Approximately 90.4 percent of those surveyed indicated that parking at Tsali was either ‘good’ or ‘very good’. This suggests that with current visitation rates, visitors are quite satisfied with parking availability, proximity to trail heads, and condition of the parking area.

Table 3. Site facility performance and importance

Facility	[Performance]						
	Percent of Respondents						
	(5) Very good	(3.67) Good	(2.33) Fair	(1) Poor	(*) Don't know/care	Performance Mean	Rank
Toilets	17.2	46.2	23.4	6.5	6.7	3.39	7
Parking	41.9	48.5	8.1	0.8	0.6	4.10	1
Campsite (availability)	18.3	22.1	7.8	4.6	47.2	3.70	6
Campsite (quality)	17.6	28.6	5.3	0.9	47.7	3.94	3
Bike wash	30.3	42.7	15.6	2.9	8.5	3.78	5
Info. Board	30.6	52.1	10.6	0.9	5.9	3.93	4
Security/safety	32.6	44.9	5.9	0.6	15.9	4.07	2

Facility	[Importance]						
	Percent of Respondents						
	(5) Very import.	(4)	(3) Moderately important	(2)	(1) Not import.	Import. Mean	Rank
Toilets	32.2	33.3	23.5	5.9	5.1	3.82	3
Parking	26.5	44.5	23.2	2.4	3.4	3.88	2
Campsite (availability)	32.7	23.0	21.2	6.4	16.8	3.49	7
Campsite (quality)	31.1	28.6	17.9	9.2	13.2	3.55	4
Bike wash	19.4	35.5	30.1	9.6	5.5	3.54	6
Info. Board	20.9	30.9	34.1	10.5	3.6	3.55	5
Security/safety	44.5	32.8	17.0	2.7	3.0	4.13	1

The second highest ranking item is security/safety with a mean of 4.07. About 77.5 percent of respondents reported security/safety to be either 'good' or 'very good'. Interesting, nearly 16 percent reported 'don't know/don't care' for this item. In part this may be due to some people feeling that, given visitation levels and characteristics of current users, security/safety is not much of an issue. While there is no regular security, uniformed Forest Service employees and senior citizen volunteers frequent the area, particularly around the trail heads and parking lot. This presence contributes to low rates of vandalism and a feeling of security on behalf of visitors.

Campsite quality (3.94) and availability (3.70) ranked third and sixth respectively among site facility performance means. However, in both cases over 47 percent of respondents chose the 'don't know/don't care' rating. This result suggests that almost half of site users simply do not use these facilities. Of those not registering 'don't know/don't care' responses, 88.2 percent rated campsite quality 'good' or 'very good.' Fewer, only 76.5 percent of the same subset, rated campsite availability 'good' or 'very good'.

Trailhead features like the bike washing station and the information board rated performance means of 3.78 and 3.93 respectively. It appears that about 9 percent of visitors do not bother with the bike washing area and about 6 percent do not make use of the information board. Seventy-three percent of visitors rated the washing station as 'good' or 'very good' while over 80 percent rated the information board similarly. Just over 15 percent rated the washing area as 'fair'.

Clearly, the poorest performing site facility is toilets with a mean of 3.39. In spite of nearly 7 percent of respondents indicating 'don't know/don't care', approximately 30 percent of visitors rated the toilet facilities as 'fair' or 'poor'. This low rating is probably driven by the fact that only 1 male and 1 female toilet are available in the area between the main parking lot and the trail head.

Importance ratings for the site facilities are found in the lower portion of Table 3. Security/safety, parking, and toilet facilities are the most important features to visitors with importance means of 4.13, 3.88, and 3.82 respectively. Campsite availability and quality, the bike washing station, and the information board were all, on average, considerably less important with means around 3.5. However, the similarity of the means could be misleading. For example, the campsite variables have higher percentage responses at the extremes, 'very good' or 'not important' than is the case with either the information board or the bike washing station. This

result suggests that there is a significant group of campers for whom campsite features are quite important, but there are also many who do not camp and hence the lack of importance of campsite quality and availability. Conversely, it appears that use of the bike washing area and the information board is more general across the population of visitors and that the means for these features are more representative of all users.

Combining performance and importance information across site facilities, some issues are apparent. Parking and security/safety are highly rated in both areas indicating that management need only continue the current course. This does not necessarily imply the status quo but rather as visitation increases, maintaining the same proportion of parking spaces to visitors would be beneficial. Campsite quality and availability are not an issue to about half of the users, but for the other half, camping facilities are pretty important. It appears that the quality of these facilities is not as much of a concern as availability. Finally, among site facilities, management should be most concerned about toilets. Toilets are the third most important item among the 7 facilities examined, but rank dead last in terms of current visitor satisfaction.

### **Local Area Amenities and Services**

Visitors were asked about the performance and importance of a number of local area amenities and services which could complement their experience at Tsali. These included lodging, off-site campgrounds, bed and breakfasts, eateries, guide/outfitter services and supplies, gifts and craft shopping, general shopping, and other areas of interest. While management at Tsali has no control over such things, understanding visitor preferences in these areas allows the possibility of working with local government and business to develop infrastructure important to the Tsali experience as well as providing potential for community development.

Table 4. Local area amenities and services

Facility	[Performance] Percent of Respondents						
	(5) Very good	(3.67) Good	(2.33) Fair	(1) Poor	(*) Don't know/care	Performance Mean	Rank
Lodging	24.2	41.1	7.9	1.7	25.1	3.90	3
Campgrounds	16.6	31.8	7	1.1	43.5	3.84	4
Bed/breakfasts	8.7	19.8	7.4	2.1	62	3.57	5
Restaurants	14.3	37.7	22.2	6.9	18.9	3.31	7
Guide/outfit service/supply	28.3	35.4	7.5	1.3	27.4	4.00	1
Gifts/crafts	7	27.4	11.6	2.1	51.9	3.42	6
Other shopping	7.5	26.9	17.7	6.1	41.8	3.15	8
Other interest	24.1	37.2	7	1.6	30	3.93	2

Facility	[Importance] Percent of Respondents						
	(5) Very import.	(4)	(3) Moderately important	(2)	(1) Not import.	Importance Mean	Rank
Lodging	28.4	28.8	20.6	9.2	13	3.50	2
Campgrounds	25	21.3	22.5	14.6	16.6	3.24	4
Bed/breakfasts	7.6	12.2	22.3	22.8	33.8	2.36	6
Restaurants	25.6	30.6	29.9	7	6.9	3.61	1
Guide/outfit service/supply	24.7	30.4	23.5	8.3	13.1	3.45	3
Gifts/crafts	3.6	10.7	20.9	19	45.1	2.08	8
Other shopping	0.8	11.9	28.6	18.9	32.5	2.24	7
Other interest	19.2	23.2	30.6	12.9	14.1	3.21	5



Four items in this category received performance ratings averages of ‘good’ (3.67) or better (Table 4). They include guide/outfitter service/supply (4.00), other areas of interest (3.93), general lodging (3.90) and off-site campgrounds (3.84). The remaining four items received average performance ratings below ‘good’. These items included bed and breakfasts (3.57), gift and craft shopping (3.42), restaurants (3.31), and other shopping (3.15). Although ‘don’t know/don’t care’ responses did not factor into the calculation of mean performance ratings, it is important to note that only three items, restaurants, lodging, and guide/outfitter service/supplies, had less than 30 percent of respondents entered in the ‘don’t know/don’t care’ column.

In terms of importance (bottom Table 4), 6 of the 8 items received mean importance scores below 3.5. This compares to only one site facility item, campsite availability (3.49), and one trail related item, easy trails (3.2). In fact, three local area amenity and service items had mean scores of less than 3.0, indicating that on average, visitors to Tsali found them less than even ‘moderately important’. The items which at present seem very unimportant to Tsali visitors include bed and breakfasts (2.36), other shopping (2.24), and gift and craft shopping (2.08).

Combining performance and importance marks for local area amenities and services, a number of observations can be made. First, there are very high percentages of visitors selecting ‘don’t know/don’t care’ across the various items. Second, there are similar high percentages in the importance columns representing ratings less than ‘moderately important’. Given this correlation, it generally appears that Tsali riders do not find many of the listed local area amenities and services add much to their experience. Moreover, they are unlikely to do so. Given the extremely low importance means for bed and breakfasts, gift and craft shopping, and other shopping, the performance of these items is probably irrelevant. For each of these items, more than 50 percent of respondents find them less than ‘moderately important’ and less than 10 percent find any of them ‘very important’. Simply put, the population of Tsali users is unlikely to provide much of a market for such things.

On the other hand, restaurants, lodging, guide/outfitter services/supplies, and campgrounds are important to large segments of Tsali users as evidenced by the fact that 40 to 60 percent of respondents list each of these items as being more than ‘moderately important’. With performance rankings of 1, 3, and 4 respectively, guide/outfitter services/supplies, lodging, and campgrounds appear to be fitting visitor needs relatively well, especially guide/outfitter

service/supplies. However, the high importance rank (1) of restaurants combined with its low performance ranking (7) makes it very clear that better eating facilities in the local area would be welcomed and probably frequented by Tsali users.

### **Preference and Satisfaction Conclusions**

Looking at performance and importance ratings across trail attributes, site facilities, and local area amenities and services, a number of general conclusions can be made. First, the most important things to most visitors are trail attributes and on-site facilities. Tsali visitors come to the area to mountain bike first and foremost, with ancillary and off-site activities relegated to relatively minor importance.

Generally, among trail attributes and site facilities, performance and importance ratings are highly correlated suggesting that things visitors find important are being done well. The only exceptions appear to be trail congestion and toilets. However, it should be noted that the mean performance score for trail congestion (3.64) is barely below the 'good' rating of 3.67. Nevertheless, both these items merit attention by management. Trail congestion can be addressed in two ways, either by altering the current horse/bike rotation system or by developing more single-track trail miles. The former would come at the expense of the shrinking proportion of horse riders while the latter would involve additional capital and maintenance expenditures. Toilet facilities are clearly lacking and it would appear the best solution would be to increase toilet capacity in the vicinity of the main parking lot and trailhead. A more subtle finding pertains to Tsali camping facilities. Here, about half of those surveyed found them to be basically unnecessary, while the other half found them very important to their experience. The split in importance ratings resulted in relatively low importance means for these two items. Local area services and amenities are all basically less important to Tsali visitors than trail attributes or on-site facilities. With the exception of restaurants, items in this category appear adequately provided in the local area. In the case of restaurants, the importance rating is relatively high (ranked first in the category, mean of 3.61) with 56.2 percent of respondents rating restaurants as more than 'moderately important'. However, restaurants were the second worst performers in the category with 35.9 percent of respondents outside the 'don't know/don't care' column rating

them ‘fair’ or ‘poor’. From these data it would appear that Tsali visitors would provide a potential market for the development of improved restaurant services in the local area.

### **USER FEES, MANAGEMENT OPTIONS, AND STATED BEHAVIOR**

Because Tsali is one of the Forest Service’s Fee Demonstration sites, issues related to how visitors perceive the payment system, fee levels, and the value they receive for the services provided are all relevant concerns to site managers. In general, the mountain bikers at Tsali do not object to the idea of user fees. Three general questions were asked of all survey respondents. These questions dealt with fees at Tsali and on public recreation land, the magnitude of the use fee at Tsali, and the convenience of the fee collection at Tsali (see Appendix A -- questions 35-37 in Survey A and questions 8-10 in Survey B). Ninety-five percent felt that user fees could be a “good tool to manage public recreation areas,” in general and at Tsali. Only 1.5 percent disagreed with this notion, leaving the remaining 3.5 percent undecided. Most were satisfied with the levels of the fees currently charged at Tsali. The vast majority (96.4 percent) of respondents supported the use of fees at Tsali. Most, 89.4 percent felt the current fee level of \$2 per day or \$15 year to be ‘about right’ for current services, although 6.9 percent felt the fee at Tsali was ‘too low.’ Only 3.7 percent said the fee was ‘too high.’ An overwhelming number of bikers (95.5 percent) felt the current fee collection system, consisting of a locked steel drum with entry slot and honor-system envelopes with detachable permits, to be ‘convenient.’ Only 3 percent deemed the system ‘inconvenient,’ while 1.5 percent were ‘undecided.’

One subset of visitors was then asked about their willingness to accept a slight increase in the user fee (\$3 per person per day from the current \$2 and \$20 per year from the current \$15) if more services were also provided. These visitors were also asked to indicate which service or set of services they would like to see for the higher fee (see Survey A, questions 38-48). A little more than three-fourths of the visitors (76.2 percent) indicated that they would be willing to accept this fee increase for more services. Among those willing to pay for increased services, 76.8 percent wanted more trail miles. The two services next most frequently indicated were having showers near the trailhead (45.9 percent) and increasing the number of toilets (39.1

percent). Improving the trail maintenance (28.8 percent) and trail surfaces (27.6 percent) followed. Increasing the number of campsites (23.8 percent), bike wash stations (20.0 percent), and parking spaces (15.5 percent) were the only other improvements indicated by at least one-tenth of these users. Clearly, a number of visitors indicated that they wanted more than one additional service in conjunction with the fee increase. Not quite 16 percent chose only one service to improve, while most (57.4 percent) chose at least two items from the proposed improvements listed on the survey.

A second subset of visitors was presented with a set of management options considered feasible for Tsali under the fee demo project. One option was to retain the status quo while the others involved an increase in the use fee and the promise of a specific set of changes (see Survey B). The options were to:

A. Continue with present trail and rotation system while maintaining current fee structure of \$2 per day and \$15 per year. Fee receipts would be used to maintain existing conditions.

B. Add a new 6-8 mile trail loop at Tsali. This loop would be part of the existing rotation system on the Mouse Branch side and be about the same level of difficulty. Fees would increase to \$3 per day and \$20 per year. Fee receipts would be used to maintain trails and facilities at existing conditions and to construct and maintain the new loop.

C. Construct a 6-8 mile section of a long (60-80 mile) point-to-point trail originating at Tsali and terminating within the Graham/Swain two county area. The trail would be of similar difficulty as current trails at Tsali. Fees would increase to \$3 per day and \$20 per year with the annual pass good at all trails. Fee receipts would be used to maintain trails and facilities at existing conditions and to construct and maintain a new 6-8 mile segment of the long trail each year until completed.

D. Construct a loop trail system at a new location within the Graham/Swain two county area. Each year a 6-8 mile section of the loop system would be constructed until the new area had about the same amount of trails and conditions as Tsali. Fees would increase to \$3 per day and \$20 per year with the annual pass good at both sites. Fee receipts would be used to construct the trails at the new site and to maintain trails and facilities at existing conditions at both Tsali and the new site.

E. Improve non-trail facilities at Tsali. Four new showers (2 male and 2 female) and two new bathrooms (1 male and 1 female) would be constructed. In addition, 2 new dispersed camping areas would be created with room for 5 tent sites at

each. Fees would increase to \$3 per day and \$20 per year with the annual pass good at both sites. Fee receipts would be used to construct the new facilities and to maintain existing trails and facilities at current conditions.

After viewing the options, respondents were asked to rate them on a 5-point scale (5 being most preferred, 1 being least preferred). Results of visitor choices among these options are listed in the top portion of Table 5. Columns 2 through 6 contain respondents ratings by percentage for each option. Columns 7 and 8 contain the mean and relative rank of each option.

Examining the means and relative ranking of each option provides a number of insights. First, Option A (status quo) is the least preferred option (mean ranking 2.56). While appreciating the existing conditions at Tsali, as evidenced by the high performance ratings for on-site entities discussed in the previous section of this report, visitors prefer changes involving moderate cost increases that add to the suite of services currently being provided. This finding is consistent with findings above wherein more than 75 percent of visitors surveyed indicated they would accept higher fees for desired improvements.

A second obvious finding is that visitors most prefer improvements which increase trail miles. The top 3 options, B (new 6-8 mile on-site loop, 3.55), D (new area near Tsali, 3.31), and C (new linear trail system from Tsali, 3.21), all involve additions to the current inventory of trails and fee increases. Options A (status quo, 2.56) and E (improve non-trail facilities on-site, 2.61) are distant finishers. Moreover, it should be noted that fully 68.5 percent of respondents rated either Option A or Option E as their ‘least preferred alternative.’ On the contrary, the two options with the highest percentage of ‘most preferred’ choices were Option D (30.8 percent) and Option B (24.9 percent). However, Option B surpassed Option D in overall rankings because fewer people chose it as the ‘least preferred’ option and the largest number of people chose it as the ‘second most preferred’ option (30.8 percent).

Table 5. Management preferences and stated behavior

	[Performance]								
	Percent of Respondents								
	(5) Most preferred	(4)	(3)	(2)	(1) Least preferred	Mean	Rank		
Option A	15.6	12.3	16.3	23.9	31.9	2.56	5		
Option B	24.9	30.8	24.2	15.0	5.1	3.55	1		
Option C	19.4	24.2	25.3	19.8	11.4	3.21	3		
Option D	30.8	14.7	23.1	17.2	14.3	3.31	2		
Option E	17.8	15.9	12.3	17.4	36.6	2.61	4		
	[Change in Trips per Year]								
	Percent of Respondents								
	<-2	-2	-1	No change	+1	+2	>+2	Mean change	Percent Change
Option A	0.0	0.4	2.0	80.2	8.7	5.6	3.2	.266	7.96
Option B	0.0	0.4	0.8	54.4	21.6	13.6	9.2	.748	22.40
Option C	0.0	0.4	1.6	60.0	18.8	9.2	10.0	.652	19.52
Option D	0.0	0.4	0.8	56.2	23.7	10.4	8.4	.683	20.45
Option E	1.6	0.4	0.4	72.5	9.6	8.0	7.6	.422	12.63

Respondents were also queried about their trip-taking behavior. Each was asked to indicate the expected change in their annual number of trips to Tsali under the 5 management scenarios. Choices included a range of '-3' (3 fewer trips) to no change to '+3' (3 additional trips), along with the option of selecting any number outside this range (see Survey B). Results are reported in the bottom portion of Table 5. For each of the options, columns 2 through 8 represent the percentage of respondents indicating the change at the top of the column. Column 2 contains anyone listing a decrease of more than 2 trips per year while column 8 contains anyone listing more than 2 trips per year. In both cases very few people indicated changes exceeding an

absolute value of three. Column 4 contains the percentages of respondents indicating no expected change in their annual trips under the various management plans.

Under the current and proposed management plans, the percentage of visitors expecting to take fewer trips to Tsali is less than 2.5 percent in all cases. Those expecting to maintain their current number of trips to Tsali (no change) are by far the most numerous in any given option. Under Option A (status quo) and Option E (non-trail improvements), 80.2 and 72.5 percent of respondents respectively maintain that they will neither increase nor decrease their trips to Tsali. The 'no change' percentages drop respectively for Options C, D, and B to 60.0, 56.2, and 54.4 percent. All of these options guarantee more trail miles. For Options E and A, annual trips to Tsali will increase by at least 1 for 25.2 and 17.5 percent of respondents respectively. However, the options allowing for increased trail miles produced much larger percentages of respondents who said their trips to Tsali would increase by at least 1 per year ( Option B, 44.4 percent; Option D, 42.5 percent; Option C, 38.0 percent).

Column 9 contains the mean change in trips per visitor under each plan. Option B yields the largest change in the mean number of trips per visitor per year at .748, while Options D and C are close behind at .683 and .652. Once again, the options that do not include trail improvements lag behind (Option E, .422; Option A, .266). Combining current trips with intended trips under each management alternative facilitates calculation of the percentage change in trips per year by the average user (column 10). Option B yields a 22.4 percent increase in trips while Options D and E yield changes of 20.45 and 19.52 percent respectively. Options E and A provide increases of 12.63 and 7.96 percent.

A number of conclusions can be deduced from the information in Table 5. First, regardless of the management plan, respondents plan to increase their use of Tsali in the future. Second, there is little question that riders prefer and will positively respond to changes which increase trail miles. Third, the 4 most preferred options (B, D, C, E) all involved an increase in user fees. Admittedly, the increase of \$1 per day is dwarfed by travel expenses for the great majority of visitors. Finally, while riders are quite happy with conditions at Tsali, maintaining the status quo is the least preferred alternative.

# APPENDIX A

On-site questionnaire versions A and B



1. Interviewer Code: \_\_\_\_\_ 2. Interview Site: \_\_\_\_\_
3. Date: \_\_\_\_\_ 4. Weather: \_\_\_\_\_ 5. Trail Condition: \_\_\_\_\_
6. Time: \_\_\_\_\_ 7. Survey Number: \_\_\_\_\_ 8. Party Number: \_\_\_\_\_
9. Race: \_\_\_\_\_ 10. Gender: \_\_\_\_\_

## INTRODUCTION -- Read attached statement

Have you been interviewed here since August 1, 1998? N Y --- If Yes, how many times? \_\_\_\_\_

## TRIP PROFILE

1. Is TSALI your primary destination on this trip? Y N
2. Is this your first trip to TSALI ? Y N (If YES -- go to question 4)
3. How many years have you been coming to TSALI ? \_\_\_\_\_ years
4. What is your residence Zip Code? \_\_\_\_\_
5. What was the approximate one-way transit time to TSALI ? \_\_\_\_\_ hours
6. Did you begin this trip from a place other than your primary residence?  
Y N (if NO -- go to question 10 )
- Where did you begin this trip? 7. City: \_\_\_\_\_ 8. State: \_\_\_\_\_ 9. Zip: \_\_\_\_\_
- On what date and time did you begin this trip? 10. (month-day-year) \_\_\_\_\_ 11. Time: \_\_\_\_\_
- On what date and time did you arrive at TSALI? 12. (month-day-year) \_\_\_\_\_ 13. Time: \_\_\_\_\_
- When will you leave TSALI ? 14. (month-day-year): \_\_\_\_\_ 15. Time: \_\_\_\_\_
- Will you spend more than 50-percent of your time on this trip visiting areas other than TSALI ? 16. Y N
- What do you estimate will be your total time away from home on this trip? 17. \_\_\_\_\_ days

## VISITOR PROFILE

- Including this visit, how many trips have you made to TSALI in the last 12 months? 1. \_\_\_\_\_ trips
- What is the total number of days for all of these trips? 2. \_\_\_\_\_ days
- Not including this trip, how many trips do you plan to TSALI in the next 12 months? 3. \_\_\_\_\_ trips
- Is mountain biking your main activity while at TSALI ? 4. Y N (if NO go to question 13)
- How many years have you been mountain biking? 5. Years: \_\_\_\_\_
- How many of your trips in the last 12 months to TSALI were for mountain biking? 6. \_\_\_\_\_

Regardless of location, how many days in the last 12 months did you spend at mountain biking ? 7. \_\_\_\_\_ days

How many trips in the last 12 months, to any location more than 20 minutes from home, have you made to specifically engage in mountain biking ? 8. \_\_\_\_\_ trips

How would you rate your skill level at mountain biking? 9. \_\_\_\_\_ (Circle one)

a. Expert      b. Above average      c. Average      d. Below average      e. Beginner

Where is your favorite place to mountain bike? 10. TSALI or Area Name: \_\_\_\_\_

11. Nearest City: \_\_\_\_\_ 12. State: \_\_\_\_\_

Do you regularly participate in other recreation activities while at TSALI ? 13. Y      N (if N skip 14-15)

What are one or two of these activities at TSALI ? 14. \_\_\_\_\_ 15. \_\_\_\_\_

Where did you obtain your information about TSALI ? (Circle all that apply)

16. Friend/Family      17. Bike shop      18. Magazine      19. Newspaper      20. Public Agency  
21. Internet      22. Chamber of Commerce      23. Tsali Area Business      24. Other \_\_\_\_\_

Suppose TSALI was unavailable for this trip. Would you have recreated elsewhere? 25. Y      N (if N skip 26-29)

Where would you have recreated? 26. Area Name: \_\_\_\_\_

in      27. City: \_\_\_\_\_      28. State: \_\_\_\_\_

What would have been the main activity ? 29. \_\_\_\_\_

#### DEMOGRAPHIC INFORMATION

How many people, including yourself, are recreating with you on this visit? 1. \_\_\_\_\_

Which best describes the group recreating with you? 2. \_\_\_\_\_

a. Family      b. Friends      c. Family & Friends      d. Club or Organized Group  
f. Traveling Alone      g. Other

Did you use a professional guide? 3. Y      N

How would you describe your household? 4. \_\_\_\_\_

a. Single Adult (no children)      b. Single Adult with Children (under 18)  
c. Two Adults (no children)      d. Two Adults with Children (under 18)  
e. Three or more Adults (no children)      f. Three or more Adults with Children (under 18)

Which best describes your level of education? 5. \_\_\_\_\_

a. High school      b. Some college      c. College grad      d. Graduate school      e. Other \_\_\_\_\_

What is your age? 6. \_\_\_\_\_ Do you have a disability? 7.      N      Y \_\_\_\_\_

What interval best describes your annual household income? 8. \_\_\_\_\_

- |                      |                       |                      |              |
|----------------------|-----------------------|----------------------|--------------|
| a. Under \$10,000    | b. \$10,001 - 30,000  | c. \$30,001 - 50,000 |              |
| d. \$51,000 - 75,000 | e. \$75,001 - 100,000 | f. Above \$100,001   | g. No answer |

Which category best describes your current main occupation? 9. \_\_\_\_\_ (Circle one)

- |             |                                |               |               |                            |
|-------------|--------------------------------|---------------|---------------|----------------------------|
| a. Student  | b. Trades                      | c. Sales      | d. Management | e. Technical               |
| f. Educator | g. Medical                     | h. Law        | i. Government | j. Recreation Professional |
| k. Retired  | l. Forestry/Agriculture/Mining | l. Unemployed |               | m. other                   |

#### INFORMATION ABOUT TSALI

Which Trail(s) did you ride today? (mark all that apply) 1. \_\_\_\_\_

- |                  |              |                     |
|------------------|--------------|---------------------|
| a. Right Loop    | b. Left Loop | c. Mouse Branch     |
| d. Thompson Loop |              | e. Don't know names |

Do you have an annual pass? 2. Y N

Which seasons of the year would you normally use TSALI? (Circle all that apply)

- |           |           |         |           |
|-----------|-----------|---------|-----------|
| 3. Spring | 4. Summer | 5. Fall | 6. Winter |
|-----------|-----------|---------|-----------|

How many hours do you spend riding per day on a typical visit to TSALI ? 7. \_\_\_\_\_ hours

Please rate the following trail attributes (on the trail(s) you rode today). Also rate the relative importance, on a scale of 1 through 5, of each attribute toward the overall quality of your visit to this site (for example, 1=not important, 3=moderately important, 5=very important).  
importance

- |                                 |           |             |      |            |       |
|---------------------------------|-----------|-------------|------|------------|-------|
| 8. Trail Scenery:               | Very good | Good        | Fair | Poor       | _____ |
| 9. Trail Congestion:            | Very low  | Low         | Fair | High       | _____ |
| 10. Trail Surfaces:             | Very good | Good        | Fair | Poor       | _____ |
| 11. Trail-side Vegetation:      | Very good | Good        | Fair | Poor       | _____ |
| 12. Trail Signage:              | Very good | Good        | Fair | Poor       | _____ |
| 13. Bike/horse Rotation System: | Very good | Good        | Fair | Poor       | _____ |
| 14. Single-track availability:  | Too much  | About right |      | Too little | _____ |
| 15. Amount of easy trails:      | Too much  | About right |      | Too little | _____ |
| 16. Amount of difficult trails: | Too much  | About right |      | Too little | _____ |

Have you experienced any conflicts with other users at TSALI ? 17. Y N (If NO -- SKIP 18-21 )

Which user groups have been a source of conflict for you? (Circle all that apply)

18. Mountain bikers      19. Horse riders      20. Hunters      21. Other \_\_\_\_\_

Please rate the following site facilities as you found them on THIS VISIT. Also rate the relative importance, on a scale of 1 through 5, of having these facilities toward the overall quality of your visit to this site (for example, 1=not important, 3=moderately important, 5=very important).

importance						
22. Toilets:	Very good	Good	Fair	Poor	DK	_____
23. Parking availability:	Very good	Good	Fair	Poor	DK	_____
24. Camp-site availability:	Very good	Good	Fair	Poor	DK	_____
25. Camp-site quality:	Very good	Good	Fair	Poor	DK	_____
26. Security / Safety:	Very good	Good	Fair	Poor	DK	_____
27. Bike Wash Area:	Very good	Good	Fair	Poor	DK	_____
28. Information Board:	Very good	Good	Fair	Poor	DK	_____

Please rate the following services found within a 25-mile distance of TSALI. Also rate the relative importance, on a scale of 1 through 5, of each service toward the overall quality of your visit to this site (for example, 1=not important, 3=moderately important, 5=very important).

importance:

29. Lodging:	Very good	Good	Fair	Poor	DK	_____
30. Other Campgrounds:	Very good	Good	Fair	Poor	DK	_____
31. Eating places:	Very good	Good	Fair	Poor	DK	_____
32. Shopping	Very good	Good	Fair	Poor	DK	_____
33. Guide/Outfitter services/supplies:	Very good	Good	Fair	Poor	DK	_____
34. Other places of interest:	Very good	Good	Fair	Poor	DK	_____

The following relate to the USE FEE at TSALI and on public lands in general:

35. Use fees can be a good tool to manage public recreation areas:	Y	N	Don't Know
36. For the current services the use fee at TSALI is:	Too high	About right	Too low
37. Using the fee collection system at TSALI is:	Convenient	Inconvenient	Don't Know

The current use fee is \$2 per day or \$15 for an annual pass. Would you consider paying a higher use fee (\$3 per day and \$20 for an annual pass) to get more services? 38. Y N (if YES circle all that apply -- if NO skip 48-57)

39 More trail miles      40 More parking      41. More campsites      42. More bathrooms  
43. Trailhead showers      44. More site maintenance      45. Better trail surface maintenance  
46. Better trailside maintenance      47. More bike washing areas      48. Other \_\_\_\_\_

#### EXPENDITURE MAILBACK INFORMATION

We need to collect additional information about trip expenditures. This information is best compiled when the traveller has returned home and can think about the costs of the completed trip. This information is very important to site managers, local area planners, and regional planners. Would you complete a mail survey detailing your expenditures on this trip? WE WILL DESTROY YOUR ADDRESS WHEN THE STUDY IS COMPLETED  
49. Y N (if NO -- end interview)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Zip: \_\_\_\_\_

1. Interviewer Code: \_\_\_\_\_ 2. Interview Site: \_\_\_\_\_
3. Date: \_\_\_\_\_ 4. Weather: \_\_\_\_\_ 5. Trail Condition: \_\_\_\_\_
6. Time: \_\_\_\_\_ 7. Survey Number: \_\_\_\_\_ 8. Party Number: \_\_\_\_\_
9. Race: \_\_\_\_\_ 10. Gender: \_\_\_\_\_

## INTRODUCTION -- Read attached statement

Have you been interviewed here since August 1, 1998? N Y --- If Yes, how many times? \_\_\_\_\_

## TRIP PROFILE

1. Is TSALI your primary destination on this trip? Y N
2. Is this your first trip to TSALI? Y N (If YES -- go to question 4)
3. How many years have you been coming to TSALI? \_\_\_\_\_ years
4. What is your residence Zip Code? \_\_\_\_\_
5. What was the approximate one-way transit time to TSALI? \_\_\_\_\_ hours
6. Did you begin this trip from a place other than your primary residence? Y N (if NO -- go to question 10)
- Where did you begin this trip? 7. City: \_\_\_\_\_ 8. State: \_\_\_\_\_ 9. Zip: \_\_\_\_\_
- On what date and time did you begin this trip? 10. (month-day-year) \_\_\_\_\_ 11. Time: \_\_\_\_\_
- On what date and time did you arrive at TSALI? 12. (month-day-year) \_\_\_\_\_ 13. Time: \_\_\_\_\_
- When will you leave TSALI? 14. (month-day-year): \_\_\_\_\_ 15. Time: \_\_\_\_\_
- Will you spend more than 50-percent of your time on this trip visiting areas other than TSALI? 16. Y N
- What do you estimate will be your total time away from home on this trip? 17. \_\_\_\_\_ days

## VISITOR PROFILE

- Including this visit, how many trips have you made to TSALI in the last 12 months? 1. \_\_\_\_\_ trips
- What is the total number of days for all of these trips? 2. \_\_\_\_\_ days
- Not including this trip, how many trips do you plan to TSALI in the next 12 months? 3. \_\_\_\_\_ trips
- Is mountain biking your main activity while at TSALI? 4. Y N (if NO go to question 13)
- How many years have you been mountain biking? 5. Years: \_\_\_\_\_
- How many of your trips in the last 12 months to TSALI were for mountain biking? 6. \_\_\_\_\_

Regardless of location, how many days in the last 12 months did you spend at mountain biking ? 7. \_\_\_\_\_ days

How many trips in the last 12 months, to any location more than 20 minutes from home, have you made to specifically engage in mountain biking ? 8. \_\_\_\_\_ trips

How would you rate your skill level at mountain biking? 9. \_\_\_\_\_ (Circle one)  
a. Expert      b. Above average      c. Average      d. Below average      e. Beginner

Where is your favorite place to mountain bike? 10. TSALI or Area Name: \_\_\_\_\_  
11. Nearest City: \_\_\_\_\_ 12. State: \_\_\_\_\_

Do you regularly participate in other recreation activities while at TSALI ? 13. Y      N (if N skip 14-15)

What are one or two of these activities at TSALI ? 14. \_\_\_\_\_ 15. \_\_\_\_\_

Where did you obtain your information about TSALI ? (Circle all that apply)  
16. Friend/Family      17. Bike shop      18. Magazine      19. Newspaper      20. Public Agency  
21. Internet      22. Chamber of Commerce      23. Tsali Area Business      24. Other \_\_\_\_\_

Suppose TSALI was unavailable for this trip. Would you have recreated elsewhere? 25. Y      N (if N skip 26-29)

Where would you have recreated? 26. Area Name: \_\_\_\_\_ in  
27. City: \_\_\_\_\_ 28. State: \_\_\_\_\_

What would have been the main activity ? 29. \_\_\_\_\_

#### DEMOGRAPHIC INFORMATION

How many people, including yourself, are recreating with you on this visit? 1. \_\_\_\_\_

Which best describes the group recreating with you? 2. \_\_\_\_\_  
a. Family      b. Friends      c. Family & Friends      d. Club or Organized Group  
f. Traveling Alone      g. Other

Did you use a professional guide? 3. Y      N

How would you describe your household? 4. \_\_\_\_\_  
a. Single Adult (no children)      b. Single Adult with Children (under 18)  
c. Two Adults (no children)      d. Two Adults with Children (under 18)  
e. Three or more Adults (no children)      f. Three or more Adults with Children (under 18)

Which best describes your level of education? 5. \_\_\_\_\_  
a. High school      b. Some college      c. College grad      d. Graduate school      e. Other \_\_\_\_\_

What is your age? 6. \_\_\_\_\_ Do you have a disability? 7. N      Y \_\_\_\_\_

What interval best describes your annual household income? 8. \_\_\_\_\_  
a. Under \$10,000      b. \$10,001 - 30,000      c. \$30,001 - 50,000  
d. \$51,000 - 75,000      e. \$75,001 - 100,000      f. Above \$100,001      g. No answer

Which category best describes your current main occupation? 9. \_\_\_\_\_ (Circle one)

- |             |                                |               |               |                            |
|-------------|--------------------------------|---------------|---------------|----------------------------|
| a. Student  | b. Trades                      | c. Sales      | d. Management | e. Technical               |
| f. Educator | g. Medical                     | h. Law        | i. Government | j. Recreation Professional |
| k. Retired  | l. Forestry/Agriculture/Mining | l. Unemployed |               | m. other                   |

#### INFORMATION ABOUT TSALI

Which Trail(s) did you ride today? (mark all that apply) 1. a. Right Loop    b. Left Loop    c. Mouse Branch  
d. Thompson Loop    e. Don't know names

Do you have an annual pass? 2.    Y        N

Which seasons of the year would you normally use TSALI? (Circle all that apply)

3. Spring    4. Summer    5. Fall    6. Winter

How many hours do you spend riding per day on a typical visit to TSALI ? 7. \_\_\_\_\_ hours

The following relate to the USE FEE at TSALI and on public lands in general:

- |   |            |              |            |
|---|------------|--------------|------------|
| 8. Use fees can be a good tool to manage public recreation areas: | Y          | N            | Don't Know |
| 9. For the current services the use fee at TSALI is:              | Too high   | About right  | Too low    |
| 10. Using the fee collection system at TSALI is:                  | Convenient | Inconvenient | Don't Know |

The recreation fee demonstration project at Tsali provides the Forest Service an opportunity for more innovative and flexible management strategies allowing us to better serve the public. In order to make the best management decisions we need your input.

Consider the following five potential management options for mountain biking at Tsali ( listed below A, B, C, D, E).

A.        Continue with present trail and rotation system while maintaining current fee structure of \$2 per day and \$15 per year. Fee receipts would be used to maintain existing conditions.

B.        Add a new 6-8 mile trail loop at Tsali. This loop would be part of the existing rotation system on the Mouse Branch side and be about the same level of difficulty. Fees would increase to \$3 per day and \$20 per year. Fee receipts would be used to maintain trails and facilities at existing conditions and to construct and maintain the new loop.

C.        Construct a 6-8 mile section of a long (60-80 mile) point-to-point trail originating at Tsali and terminating within the Graham/Swain two county area. The trail would be of similar difficulty as current trails at Tsali. Fees would increase to \$3 per day and \$20 per year with the annual pass good at all trails. Fee receipts would be used to maintain trails and facilities at existing conditions and to construct and maintain a new 6-8 mile segment of the long trail each year until completed.

D.        Construct a loop trail system at a new location within the Graham/Swain two county area. Each year a 6-8 mile section of the loop system would be constructed until the new area had about the same amount of trails and conditions as Tsali. Fees would increase to \$3 per day and \$20 per year with the annual pass good at both sites. Fee receipts would be used to construct the trails at the new site and to maintain trails and facilities at existing conditions at both Tsali and the new site.



E. Improve non-trail facilities at Tsali. Four new showers (2 male and 2 female) and two new bathrooms (1 male and 1 female) would be constructed. In addition, 2 new dispersed camping areas would be created with room for 5 tent sites at each. Fees would increase to \$3 per day and \$20 per year with the annual pass good at both sites. Fee receipts would be used to construct the new facilities and to maintain existing trails and facilities at current conditions.

Please rank these options 1 to 5, with 1 being your top choice and 5 being your least preferred choice. Also, next to each ranking, indicate by circling the number how your trips to the area in a typical year would change under the listed conditions.

RANK	CHANGE in TRIPS per YEAR
A. _____	-3 -2 -1 No Change +1 +2 +3 Other _____
B. _____	-3 -2 -1 No Change +1 +2 +3 Other _____
C. _____	-3 -2 -1 No Change +1 +2 +3 Other _____
D. _____	-3 -2 -1 No Change +1 +2 +3 Other _____
E. _____	-3 -2 -1 No Change +1 +2 +3 Other _____

#### EXPENDITURE MAILBACK INFORMATION

We need to collect additional information about trip expenditures. This information is best compiled when the traveler has returned home and can think about the costs of the completed trip. This information is very important to site managers, local area planners, and regional planners. Would you complete a mail survey detailing your expenditures on this trip?

WE WILL DESTROY YOUR ADDRESS WHEN THE STUDY IS COMPLETED

50. Y N (if NO -- end interview)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

1 Address correspondence to either co-principal investigator c/o USDA Forest Service, Forest Sciences Lab, 320 Green St., Athens, GA 30602 or denglish@fs.fed.us